

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A multiaxial universal testing machine providing any of uni, bi, tri and tetra dimensional movement capable to evaluate some behaviour parameters, like tensile, compression or fatigue, in different directions simultaneously of materials with planar structures having comprising:

a central block 7, working as a supporting structure; where the eight platforms 2 are rigidly attached in a radial orientation at 45° having four horizontal axes, each axis with two horizontal arms;

in which the arms are seated, designed to apply a required force and displacement to each gripping jaw, where the test specimen is attached,

wherein the eight horizontal arms are designed to apply a required force and displacement in a uni- bi, tri or tetra-axial orientation;

eight pairs of gripping jaws for attaching a test specimen with a shape adequate to the test type thereto;

detecting means for independent monitoring and actuation of each arm;

a control and management system for data acquisition and processing and for testing machine calibration and assay programming.

2. (currently amended): A multiaxial universal testing machine according to claim 1 wherein each of the platforms is a base, respectively, for each arm, and each arm is made up of an electric motor with speed reducer 1, coupled to a screw type linear drive 3, in series with a load cell 4 and a gripping jaw 6.

3. (currently amended): A multiaxial universal testing machine according to claim 2 the rotational movement of the geared motor 1 is converted into linear displacement and force by the screw type linear drive 3, monitoring and controlling this parameters with a rotary encoder in

the motor 1 (to the displacement) and a load cell 4, between the screw type linear drive 3 and the gripping jaw 6 (to the force), respectively.

4 (currently amended): A multiaxial universal testing machine according to claim 3, wherein each gripping jaw 6 seats on a slide carriage 11 that can travel along a linear dry bearing 5, responsible for the correct alignment of the test specimen displacement.

5. (currently amended): A multiaxial universal testing machine according to claim 1, the multiaxial universal testing machine ~~can be composed by 1, 2, 4, 6, 8, 10, 12, 14, 16, 18 or 20 axis being operative along any of 1, 2, 3, or 4 axes (uni, bi, tri and tetra-axial)~~, keeping all the capabilities needed to evaluate the mechanical ~~behaviour~~ behavior and performance of materials with planar structures.

6. A multiaxial universal testing machine according to claim ~~5-1~~ and the kind of assay, the test specimen shape must be associated to the number of activated axis wherein the control system for machine supervision and management system for data acquisition and processing includes a central processing unit, a display for real-time visualization of command information (configuration, monitoring and calibration) and test results and a data storage and processing system.

7. A method for ~~applying a multiaxial load to a test specimen~~ multiaxial testing of planar specimens such as textiles, composites and laminates comprising the steps of:
providing a machine having four horizontal axes each with two horizontal arms;
providing a test specimen being one of textiles, composites, and laminates;
~~Enclosing the test specimen inside the central area circumscribed by all the gripping jaws and reserved to the placement of the test specimen;~~

~~Attaching~~ attaching the test specimen to the gripping jaws involved in the an assay to perform, according to the desired orientation;

~~Applying~~ applying force to the test specimen through the displacement of the gripping jaws and following the configuration parameters defined to the test performance, including the kind of assay and the active axis,

said applying force step including the step of independently monitoring and actuating each arm.

8. (new): A method according to claim 7 wherein the kind of assay is one of tensile, compression and fatigue.